

matter thereof in a divisional application without any penalty whatsoever.

REMARKS

The **final** Office Action of March 15, 2000, has been carefully studied. The claims in the application, upon entry of the above amendment, would be claims 1, 2 and 23 only, and all of these claims should be in condition for formal allowance. Accordingly, favorable consideration, entry of the present amendment and allowance are earnestly solicited.

Acknowledgement by the PTO of the receipt of applicants' papers filed under Section 119 is noted.

Claims 2-4 have been objected to because of the omission of the word "of".

Claim 1 has been amended above to add "of" before "amino" thereby obviating the objection. In addition, claim 2 is amended to incorporate the subject matter of claims 3 and 4, the latter of which are deleted.

Withdrawal of the objection is respectfully requested.

Claim 23 has been rejected under the first paragraph of Section 112. This rejection is respectfully traversed.

The rejection states that claim 23 contains subject matter which was not described in the specification in such a

way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention. The rejection further states that, while the specification says that mouse Dhh is about 89% identical to SEQ ID NO:7, there is no disclosure of a human Dhh which is "at least 90% identical" to SEQ ID NO:7.

In response to such rejection, applicants propose to amend claim 23 to read as in the amendment presented above. As one can see, claim 23 is amended mainly in two respects. First, "human cell" from which "a DNA" is isolated is further defined. Second, amplifiable conditions by PCR are added instead of the definition "at least 90% identical with SEQ ID NO:7". That is to say, "a nucleotide sequence" is amplifiable by PCR using a sense primer encoding a part of the amino acid sequence of SEQ ID NO:3 in the region of the amino acids -22 to -1 in combination with an antisense primer complementary to a nucleotide sequence encoding a part of the amino acid sequence of SEQ ID NO:3 in the region of the amino acids 177 to 374. These amendments to claim 23 are supported by the specification as filed and are in the nature of better distinctly claiming the subject matter of claim 23. Accordingly, it is believed that such amendments to claim 23 are enterable even at this stage of the prosecution.

As to the support for PCR conditions, please see Example 1-1(c) at pages 21-24 of the specification, where it is described that the nucleotide sequence of SEQ ID NO:7 is amplified by PCR using sense primer 5'-TGTGCTGCTTGGCACTCTTG-3' (which is SEQ ID NO:13) and antisense primer 5'-CCGTGGCATTTCCTCGGAAAG-3' (which is SEQ ID NO:14). Please note that the nucleotide sequence of SEQ ID NO:7 encodes the amino acid sequence of SEQ ID NO:1, which is a human Dhh in mature form.

Please see the attached Reference Fig. 1 and Reference Fig. 2. In Reference Fig. 1, under the sense primer (i.e. SEQ ID NO:13) and antisense primer, amino acid sequences encoded by the sense and antisense primer are respectively shown. It should be noted that the amino acid sequence encoded by the sense primer coincides with amino acids -11 to -7 of SEQ ID NO:3 and the amino acid sequence encoded by the antisense primer coincides with amino acids 178 to 183 of SEQ ID NO:3. Both regions of SEQ ID NO:3 are encompassed by the region of the amino acids -22 to -1 and 177 to 374 as recited in the amended claim 23.

Please also see Reference Fig. 2, where the relationship between the amino acids sequences of SEQ ID NOs:1 to 6 are described. It is easily understood from the attached Reference Fig. 2 that the region of the amino acids -22 to -1

and 177 to 374 of SEQ ID NO:3 correspond to the signal peptide region and the C-terminal region of the precursor, respectively, and that a nucleotide sequence which encodes the amino acid sequence of SEQ ID NO:1 is amplifiable by PCR when there are nucleotide sequence which encodes a part of the amino acids -22 to -1 as a sense primer and a nucleotide sequence which encodes a part of the amino acids 177 to 374 as an antisense primer.

As mentioned above, in the amended claim 23 a purified human Dhh protein is defined with (1) human cells from which a DNA encoding the human Dhh is isolated, (2) PCR conditions (i.e. sense primer and antisense primer) with which the nucleotide sequence contained in the DNA is amplifiable, and (3) a contiguous amino acid sequence encoded by the DNA, i.e. which conserves amino acid residues corresponding to Glu-155 and one or more residues selected from the group consisting of Ala-14, Gly-20, and Ala-46 of the amino acid sequence of SEQ ID NO:1 (please see the last part of claim 23).

In this regard, it is believed that the subject matter as recited in the amended claim 23 is well described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession

of the invention as called for in claim 23 at the time the present application was filed.

Withdrawal of the rejection is in order and is respectfully requested.

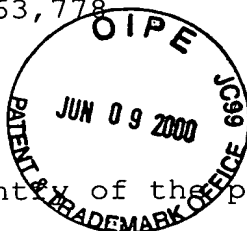
Claim 23 has also been rejected under the second paragraph of Section 112. This rejection also is respectfully traversed.

In the amendment proposed above for claim 23, it is seen that claim 23 is amended to delete "aligned with SEQ ID NO:7" and instead to insert "of SEQ ID NO:1". Entry of this amendment will obviate this rejection.

Withdrawal of this rejection is therefore respectfully requested.

There are no prior art rejections, and therefore all of applicants' claims are understood to be considered by the PTO to define novel and unobvious subject matter under Sections 102 and 103. The above amendments should obviate all outstanding matters and place the present application in condition for allowance.

In re of Appln. No. 09/063,778

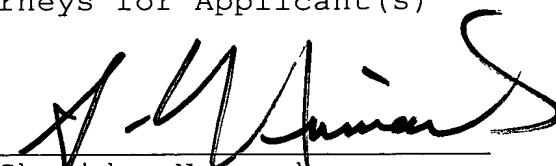


Accordingly, entry of the present amendment,
favorable consideration and allowance are earnestly solicited.

Respectfully submitted,

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